Grade: 4th – Adult
Time: 1hour
Season: All

Enviroscape

National Science Teaching Standards

A. Science as **INQUIRY**
B. PHYSICAL Science
C. LIFE Science
D. EARTH Science
E. Science **TECHNOLOGY**
F. Science in **PERSONAL** and **SOCIAL PERSPECTIVE**
G. HISTORY and **NATURE** of Science

Background Information:

The enviroscape is an interactive demonstration model that illustrates the origin of both **point** and **nonpoint** source of water pollution and how a watershed works. The model illustrates how nutrients, sediment, toxic substances, and other pollutants enter our waterways and provides opportunities for students to demonstrate how to prevent water pollution in a watershed. This activity works best when preceded by the Watershed Hike activity.

Objective:

- Students will participate in the discussion and demonstration of ways that water pollution occurs in a watershed.
- Students will understand point and nonpoint source water pollution.
- Students will identify multiple sources of nonpoint source water pollution.
- Students will investigate ways to control nonpoint source water pollution.

Pre Activity:

- Familiarize students with the key words: erosion, groundwater, nonpoint source pollution, point source pollution, watershed
- Locate Iowa rivers on a map and discuss the Mississippi River watershed.

Equipment:

- Enviroscape
- Pollution materials
- Community sheets
- Pencils

Procedure:

1. Review the watershed shown by the model (Pretend the model is of the students city)
2. Discuss and identify point sources of water pollution on the model (industrial plant, sewage treatment plant, storm drain, and sewer pipe)

3. Divide the students into groups of 2-3. Have each of the groups be responsible for a part of the community: residential, city parks and recreation (golf course), ponds and rivers, farming, factories and industry.
4. Have each group meet and discuss how it creates pollution in the community. Share this with the class. As the students are talking, you will be "sprinkling" pollution over the city.
5. Take a good look at the city. It is hard to imagine this is what your city looks like…but a lot of the pollution is microscopic so it is difficult for us to see. The "props…kool aid, cocoa, etc." have made it more visible. Nonpoint source pollutions are hard to see and point a finger at!!!!
6. Discuss the impact of wind erosion (blow on the community)
7. It rains!!! Discuss the impact of rain on the community: turbidity, runoff, seepage into the ground water.
8. Have each group identify nonpoint source pollution in their part of the community.
9. Clean-up time; have each community group meet and discuss possible solutions to their town's nonpoint source pollution problems.
10. Fix the problems and share the solutions.
11. Have students pledge one solution to the water pollution they are will commit to…forever!
12. Give each student 1 paper towel and begin the town clean-up!

Post Activity:

- Take a walk around the school grounds and the neighborhood. Identify point and nonpoint source pollution.
- "To Zone or Not to Zone" activity, Project Wild, pp. 266-269
- Contact your local water works or treatment center to come and speak to the class
- Research the pollution regulations for the state of Iowa on the internet.

Post Discussion:

- What effect does pollution have on our environment?
- After you identified nonpoint source pollution in your community what are some solutions? What can you do?
- What can you do make people more informed of the pollution?
- At Springbrook, you made a lifetime promise about water pollution clean-up…how are you going to keep that commitment forever? Make a plan.
- There has been a lot publicity in the newspapers lately, about Iowa's water…are Iowa's waters more or less polluted than most of the other 50 state? Discuss the problem and solutions.